INTERNATIONAL JOURNAL OF SOLIDS and STRUCTURES

Volume Contents and Author Index

Volume 36, 1999

PERGAMON

INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES

Editor-in-Chief: CHARLES STEELE

Associate Editor: MARIE-LOUISE STEELE
Division of Applied Mechanics and Computation
Stanford University, Stanford,
CA 94305, U.S.A.

Board of Editors

D. BIGONI — *University of Trento, Italy*
H. D. BUI — *Ecole Polytechnique, Palaisseau, France*
J. P. CARTER — *University of Sydney, Australia*
R. M. CHRISTENSEN — *Stanford University, U.S.A.*
G. M. L. GLADWELL — *University of Waterloo, Canada*
D. HILLS — *University of Oxford, U.K.*
D. H. HODGES — *Georgia Institute of Technology, Atlanta, U.S.A.*
J. HUTCHINSON — *Harvard University, U.S.A.*
N. I. IOAKIMIDIS — *University of Patras, Greece*
I. JASIUK — *Georgia Institute of Technology, Atlanta, U.S.A.*
B. L. KARIHALOO — *University of Wales, Cardiff, U.K.*
Z. MROZ — *Academy of Science, Warsaw, Poland*
D. PAMPLONA — *Universidade Católica do Rio de Janeiro, Brazil*
F. P. J. RIMROTT — *University of Toronto, Canada*
M. B. RUBIN — *Technion, Haifa, Israel*
Y. SHINDO — *Tohoku University, Sendai, Japan*
T. TARNAI — *Tech University Budapest, Hungary*
F. Y. M. WAN — *University of California, Irvine, U.S.A.*
P. WRIGGERS — *Universität Hannover, Germany*
F. ZIEGLER — *Tech Universität Wien, Austria*

Publication information: *International Journal of Solids and Structures* (ISSN 0020-7683). For 1999, volume 36 is scheduled for publication. Subscription prices are available upon request from the Publisher or from the Regional Sales Office nearest you or from this journal's website (http://www.elsevier.com/locate/ijsolstr). Further information is available on this journal and other Elsevier Science products through Elsevier's website (http://www.elsevier.nl). Subscriptions are accepted on a prepaid basis only and are entered on a calendar year basis. Issues are sent by standard mail (surface within Europe, air delivery outside Europe). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.

Orders, claims, and product enquiries: please contact the Customer Support Department at the Regional Sales Office nearest you: **New York:** Elsevier Science, PO Box 945, New York, NY 10159-0945, USA; phone: (+1) (212) 633 3730 [toll free number for North American customers: 1-888-4ES-INFO (437-4636)]; fax: (+1) (212) 633 3680; e-mail: usinfo-f@elsevier.com. **Amsterdam:** Elsevier Science, PO Box 211, 1000 AE Amsterdam, The Netherlands; phone: (+31) 20 4853757; fax: (+31) 20 4853432; e-mail: nlinfo-f@elsevier.nl. **Tokyo:** Elsevier Science, 9-15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5033; fax: (+81) (3) 5561 5047; e-mail: info@elsevier.co.jp. **Singapore:** Elsevier Science, No. 1 Temasek Avenue, #17-01 Millenia Tower, Singapore 039192; phone: (+65) 434 3727; fax: (+65) 337 2230; e-mail: asiainfo@elsevier.com.sg. **Rio de Janeiro:** Elsevier Science, Rua Sete de Setembro 111/16 Andar, 20050-002 Centro, Rio de Janeiro - RJ, Brazil; phone: (+55) (21) 509 5340; fax: (+55) (21) 507 1991; e-mail: elsevier@campus.com.br [Note (Latin America): for orders, claims and help desk information, please contact the Regional Sales Office in New York as listed above].

Advertising information: Advertising orders and enquiries can be sent to: **USA, Canada and South America:** Mr Tino de Carlo, The Advertising Department, Elsevier Science Inc., 655 Avenue of the Americas, New York, NY 10010-5107, USA; phone: (+1) (212) 633 3815; fax: (+1) (212) 633 3820; e-mail: t.decarlo@elsevier.com. **Japan:** The Advertising Department, Elsevier Science K.K., 9-15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5033; fax: (+81) (3) 5561 5047. **Europe and ROW:** Rachel Gresle-Farthing, The Advertising Department, Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK; phone: (+44) (1865) 843565; fax: (+44) (1865) 843976; e-mail: r.gresle-farthing@elsevier.co.uk.

Back Issues: Back issues of all previously published volumes, in both hard copy and on microform, are available direct from Elsevier Science offices.

© 1999 Elsevier Science Ltd. All rights reserved.

Periodicals postage is paid at Rahway, NJ. *International Journal of Solids and Structures* (ISSN 0020-7683) is published (three times a month) by Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. The US subscription price is $4546.00 per year.

POSTMASTER: Send address corrections to: *International Journal of Solids and Structures*, Elsevier Science, Customer Support Department, PO Box 945, New York, NY 10159-0945.

Distributed in the USA by Mercury Airfreight International, 365 Blair Road, Avenel, NJ 07001.

It is a condition of publication that manuscripts submitted to the journal are original and have not been published or submitted elsewhere. In a covering letter, authors must affirm that the manuscript has not been published nor submitted for publication elsewhere. The authors must agree not to publish elsewhere a paper published by the Journal. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature, and translations. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

Whilst every effort is made by the publishers and editorial board to see that no inaccurate or misleading data, opinion or statement appears in this journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the publishers, the editorial board and editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Volume Contents

NUMBER 1

K. Bose, P. A. Mataga and **P. Ponte Castañeda**	1	Stable crack growth along a brittle/ductile interface—II. Small scale yielding solutions and interfacial toughness predictions
R. Rizza and **S. Nair**	35	A penny shaped crack in a transversely isotropic material under non-axisymmetric impact loads
M. Lu, Z. Qian, W. Ren, S. Liu and **D. Shangguan**	65	Investigation of electronic packaging materials by using a 6-axis mini thermo-mechanical tester
J.-B. Leblond	79	Crack paths in three-dimensional elastic solids. I: two-term expansion of the stress intensity factors—application to crack path stability in hydraulic fracturing
J.-B. Leblond, V. Lazarus and **S. Mouchrif**	105	Crack paths in three-dimensional elastic solids. II: three-term expansion of the stress intensity factors—applications and perspectives
Y. K. Cheung and **Z. Ding**	143	Eigenfrequencies of tapered rectangular plates with intermediate line supports
V. Birman	167	Analysis of an infinite shape memory alloy plate with a circular hole subjected to biaxial tension
	179	Announcement
	181	Keywords

NUMBER 2

A. Pandolfi and **A. Carini**	185	Some extremum properties of finite-step solutions in elastoplasticity
P. Fuschi	219	Structural shakedown for elastic–plastic materials with hardening saturation surface
M. S. Wu and **H. Zhou**	241	Interactions of kinked interfacial cracks
C.-C. Hwang, S. Lin, H.-S. Chu and **W.-S. Lee**	269	Nonlinear diffusion-induced stresses in a long bar of square cross section
C.-C. Ma and **K.-C. Huang**	285	Full field analysis of an anti-plane interface crack subjected to dynamic body forces
B. Vratanar and **M. Saje**	311	A consistent equilibrium in a cross-section of an elastic–plastic beam
	339	Announcement
	341	Keywords

NUMBER 3

N. G. Stephen and **P. J. Wang**	345	Saint-Venant's principle and the plane elastic wedge
Y. C. Zhou, Z. P. Duan and **Q. B. Yang**	363	A thermal-elastic analysis on laser-induced reverse bulging and plugging in circular brass foil
J. Lu and **K. Ravi-Chandar**	391	Inelastic deformation and localization in polycarbonate under tension
Q.-H. Qin, Y.-W. Mai and **S.-W. Yu**	427	Some problems in plane thermopiezoelectric materials with holes
M. Jamal, M. Midani, N. Damil and **M. Potier-Ferry**	441	Influence of localized imperfections on the buckling of cylindrical shells under axial compression
X. Ruan, S. C. Danforth, A. Safari and **T.-W. Chou**	465	A theoretical study of the coupling effects in piezoelectric ceramics
	489	Keywords

NUMBER 4

B. B. Guzina and **R. Y. S. Pak**	493	Static fundamental solutions for a bi-material full space
X. D. Wang and **S. A. Meguid**	517	Dynamic interaction between a matrix crack and a circular inhomogeneity with a distinct interphase
K. Ting, K. T. Chen and **W. S. Yang**	533	Applied alternating method to analyze the stress concentration around interacting multiple circular holes in an infinite domain
T. J. Vogler and **S. Kyriakides**	557	On the axial propagation of kink bands in fiber composites: Part I experiments
S.-Y. Hsu, T. J. Vogler and **S. Kyriakides**	575	On the axial propagation of kink bands in fiber composites: Part II analysis
H.-S. Shen	597	Thermomechanical postbuckling of composite laminated cylindrical shells with local geometric imperfections
T. K. Saha, M. Chatterjee and **A. Roy**	619	Interaction between coplanar elliptic cracks—II shear loading
	639	Keywords

NUMBER 5

L. P. Mikkelsen	643	A numerical axisymmetric collapse analysis of visco-plastic cylindrical shells under axial compression
M. Kamlah and **C. Tsakmakis**	669	Phenomenological modeling of the non-linear electro-mechanical coupling in ferroelectrics
S. Itou and **Y. Shima**	697	Stress intensity factors around a cylindrical crack in an interfacial zone in composite materials

J. Li and **J. W. Hancock** 711 Mode I and mixed mode fields with incomplete crack tip plasticity

A. Cauvin and **R. B. Testa** 727 Elastoplastic material with isotropic damage

A. Cauvin and **R. B. Testa** 747 Damage mechanics: basic variables in continuum theories

C.-C. Lin and **C.-H. Lin** 763 Stresses around pin-loaded hole in composite laminates using direct boundary element method

785 Keywords

NUMBER 6

G. Dhondt and **M. Köhl** 789 The effect of the geometry and the load level on the dynamic failure of rotating disks

J. Zhang, J. Fan and **K. P. Herrmann** 813 Delaminations induced by constrained transverse cracking in symmetric composite laminates

A. Hoger 847 A second order constitutive theory for hyperelastic materials

C. Q. Ru 869 Effect of electrical polarization saturation on stress intensity factors in a piezoelectric ceramic

E. N. Kuznetsov 885 Singular configurations of structural systems

A. K. Soh 899 Development of special finite elements for free boundaries

X. W. Xu, T. M. Yue and **H. C. Man** 919 Stress analysis of finite composite laminate with multiple loaded holes

933 Announcement

935 Keywords

NUMBER 7

M. Enelund and **P. Olsson** 939 Damping described by fading memory—analysis and application to fractional derivative models

Q. Wang and **X. Zhang** 971 A closed form solution about stress intensity factors of shear modes for 3-D finite bodies with eccentric cracks by the energy release rate method

G. S. Mishuris 999 Stress singularity at a crack tip for various intermediate zones in bimaterial structures (mode III)

V. V. Volovoi, D. H. Hodges, V. L. Berdichevsky and **V. G. Sutyrin** 1017 Asymptotic theory for static behavior of elastic anisotropic I-beams

Y. Xu and **S. Saigal** 1045 An Element Free Galerkin analysis of steady dynamic growth of a mode I crack in elastic–plastic materials

A. Makeev and **E. Armanios**	1081	On a higher order analysis of laminated composite strips with extension-twist coupling
	1099	Announcement
	1101	Keywords

NUMBER 8

E. Glushkov, N. Glushkova and **O. Lapina**	1105	3-D elastic stress singularity at polyhedral corner points
V. S. Kothnur, S. Mukherjee and **Y. X. Mukherjee**	1129	Two-dimensional linear elasticity by the boundary node method
T. M. Teo and **K. M. Liew**	1149	A differential quadrature procedure for three-dimensional buckling analysis of rectangular plates
J. C. W. van Vroonhoven and **R. de Borst**	1169	Combination of fracture and damage mechanics for numerical failure analysis
H. Huh, C. H. Lee and **W. H. Yang**	1193	A general algorithm for plastic flow simulation by finite element limit analysis
R. H. Plaut, S. Suherman, D. A. Dillard, B. E. Williams and **L. T. Watson**	1209	Deflections and buckling of a bent elastica in contact with a flat surface
Y.-T. Cheng and **C.-M. Cheng**	1231	Scaling relationships in conical indentation of elastic-perfectly plastic solids
	1245	Announcement
	1249	Keywords

NUMBER 9

V. L. Kolmogorov	1253	A method for calculating the stress–strain state in the general boundary-value problem of metal forming—part 1
V. L. Kolmogorov L. F. Spevak and **A. V. Gorshkov**	1263	A method for calculating the stress–strain state in the general boundary value problem of metal forming—part 2. Impact of a bar against a rigid obstacle
F. M. F. Simões, J. A. C. Martins and **B. Loret**	1277	Instabilities in elastic–plastic fluid-saturated porous media: harmonic wave versus acceleration wave analyses
P. D. Chinh	1297	Shakedown limits for reinforced beam structures under fluctuating loads
L. S. Kistler and **A. M. Waas**	1311	On the response of curved laminated panels subjected to transverse impact loads
B. Nayroles	1329	Plate theory and complementary displacement method

H. H. Sherief and **F. A. Megahed** 1369 A two-dimensional thermoelasticity problem for a half space subjected to heat sources

L. T. Watson, S. Suherman and **R. H. Plaut** 1383 Two-dimensional elastica analysis of equilibrium shapes of single-anchor inflatable dams

1399 Keywords

NUMBER 10

A. Delaplace, S. Roux and **G. Pijaudier-Cabot** 1403 'Damage cascade' in a softening interface

Y. Arun Roy and **R. Narasimhan** 1427 A finite element investigation of the effect of crack tip constraint on hole growth under mode I and mixed mode loading

W. Deng and **S. A. Meguid** 1449 Analysis of a screw dislocation inside an elliptical inhomogeneity in piezoelectric solids

J. L. Grenestedt 1471 Effective elastic behavior of some models for 'perfect' cellular solids

L. M. Brock and **H. G. Georgiadis** 1503 Response of welded thermoelastic solids to the rapid motion of thermomechanical sources parallel to the interface

P. F. Pai and **M. J. Schulz** 1523 Shear correction factors and an energy-consistent beam theory

S. C. Hwang and **R. M. McMeeking** 1541 A finite element model of ferroelastic polycrystals

1557 Keywords

NUMBER 11

K. Ikeda and **K. Murota** 1561 Systematic description of imperfect bifurcation behavior of symmetric systems

W. J. Bottega and **A. M. Karlsson** 1597 On the detachment of step-tapered doublers: Part 1—foundations

A. M. Karlsson and **W. J. Bottega** 1625 On the detachment of step-tapered doublers: Part 2—evolution of pressure loaded structures

S. W. Park and **R. A. Schapery** 1653 Methods of interconversion between linear viscoelastic material functions. Part I—a numerical method based on Prony series

R. A. Schapery and **S. W. Park** 1677 Methods of interconversion between linear viscoelastic material functions. Part II—an approximate analytical method

A. P. S. Selvadurai 1701 The in-plane loading of rigid disc inclusion embedded in a crack

1715 Keywords

NUMBER 12

G. Swoboda and **Q. Yang**	1719	An energy-based damage model of geomaterials—I. Formulation and numerical results
G. Swoboda and **Q. Yang**	1735	An energy-based damage model of geomaterials—II. Deduction of damage evolution laws
B. Bhattacharya and **B. Ellingwood**	1757	A new CDM-based approach to structural deterioration
R. C. Chang	1781	Finite thickness cracked layer bonded to viscoelastic substrate subjected to antiplane shear
X. Zhang and **S. Yu**	1799	The growth simulation of circular buckling-driven delamination
C. E. Seeley and **A. Chattopadhyay**	1823	Modeling of adaptive composites including debonding
A. S. Kim, J. Besson and **A. Pineau**	1845	Global and local approaches to fracture normal to interfaces
	1865	Keywords

NUMBER 13

M. E. Ergüven and **D. Gross**	1869	On the penny-shaped crack in inhomogeneous elastic materials under normal extension
J. A. Teixeira de Freitas	1883	Hybrid finite element formulations for elastodynamic analysis in the frequency domain
S. Shen and **Z.-B. Kuang**	1925	An active control model of laminated piezothermoelastic plate
M. Ciarletta and **S. Chiritá**	1949	Thermodynamic restrictions, free energies and Saint-Venant's principle in the linear theory of viscoelastic materials with voids
M. Rahman	1965	Bonded contact of a flexible elliptical disk with a transversely isotropic half-space
C. H. Wang and **L. R. F. Rose**	1985	A crack bridging model for bonded plates subjected to tension and bending
	2015	Announcement
	2017	Keywords

NUMBER 14

K. Tai and **R. T. Fenner**	2021	Optimum shape and topology design using the boundary element method
K. T. Chau and **Y. B. Wang**	2041	A new boundary integral formulation for plane elastic bodies containing cracks and holes

N. Strömberg 2075 A Newton method for three-dimensional fretting problems

P. Trovalusci and **R. Masiani** 2091 Material symmetries of micropolar continua equivalent to lattices

S. Vigdergauz and **D. Givoli** 2109 Thermoelastic stresses in a cylinder or disk with cubic anisotropy

J. S. Lee and **X. J. Zheng** 2127 Bending and buckling of superconducting partial toroidal field coils

A. Rössle, M. Bischoff, W. Wendland and **E. Ramm** 2143 On the mathematical foundation of the (1,1,2)-plate model

2169 Announcement

2171 Keywords

NUMBER 15

K. Yu. Volokh 2175 Nonlinear analysis of underconstrained structures

O. Allix and **A. Corigliano** 2189 Geometrical and interfacial non-linearities in the analysis of delamination in composites

S. Hakim and **M. B. Fuchs** 2217 Sensitivities of multiple singular values for optimal geometries of precision structures

A. de-Andrés, J. L. Pérez and **M. Ortiz** 2231 Elastoplastic finite element analysis of three-dimensional fatigue crack growth in aluminum shafts subjected to axial loading

B. Skallerud 2259 Numerical analysis of cracked inelastic shells with large displacements or mixed mode loading

H. R. H. Kabir 2285 On the frequency response of moderately thick simply supported rectangular plates with arbitrary lamination

J. Wang, Y.-K. Yong and **T. Imai** 2303 Finite element analysis of the piezoelectric vibrations of quartz plate resonators with higher-order plate theory

2321 Keywords

NUMBER 16

I. Elishakoff, N. Impollonia and **Y. J. Ren** 2325 New exact solutions for randomly loaded beams with stochastic flexibility

D. Celentano, D. Gunasegaram and **T. Nguyen** 2341 A thermomechanical model for the analysis of light alloy solidification in a composite mould

T. Y. Kam and **F. M. Lai** 2379 Experimental and theoretical predictions of first-ply failure strength of laminated composite plates

D. Balagangadhar, G. A. Dorai and **D. A. Tortorelli** 2397 A displacement-based reference frame formulation for steady-state thermo-elasto-plastic material processes

M. Enelund, L. Mähler, K. Runesson and **B. L. Josefson** 2417 Formulation and integration of the standard linear viscoelastic solid with fractional order rate laws

I. K. Panditta, R. P. Shimpi and **K. S. R. K. Prasad** 2443 On the theory of discrete structural model analysis and design

Q.-H. Qin and **Y.-W. Mai** 2463 A closed crack tip model for interface cracks in thermo-piezoelectric materials

2481 Keywords

NUMBER 17

H.-C. Tsai and **C.-C. Lee** 2485 Tilting stiffness of elastic layers bonded between rigid plates

T. Zohdi and **P. Wriggers** 2507 A domain decomposition method for bodies with heterogeneous microstructure based on material regularization

C.-F. Gao and **W.-X. Fan** 2527 Exact solutions for the plane problem in piezoelectric materials with an elliptic or a crack

Y. Y. Kim, J. H. Kim and **J. Y. Han** 2541 A new optical pickup suspension design

M. G. D. Geers, R. de Borst, W. A. M. Brekelmans and **R. H. J. Peerlings** 2557 Validation and internal length scale determination for a gradient damage model: application to short glass-fibre-reinforced polypropylene

F. M. Borodich and **D. A. Onishchenko** 2585 Similarity and fractality in the modelling of roughness by a multilevel profile with hierarchical structure

D. Haojiang, C. Yuwei and **G. Fenglin** 2613 Solutions for transversely isotropic piezoelectric infinite body, semi-infinite body and bimaterial infinite body subjected to uniform ring loading and charge

D. Elata 2633 On the problem of rigid inclusions between two dissimilar elastic half-spaces with smooth surfaces

2637 Keywords

NUMBER 18

M. Kheyrkhahan and **R. Peek** 2641 Postbuckling analysis and imperfection sensitivity of general shells by the finite element method

V. M. Levin, M. I. Rakovskaja and **W. S. Kreher** 2683 The effective thermoelectroelastic properties of micro-inhomogeneous materials

B. Jiang, D.-N. Fang and **K.-C. Hwang** 2707 A unified model for piezocomposites with non-piezoelectric matrix and piezoelectric ellipsoidal inclusions

H.-C. Wu and **H.-K. Hong** 2735 Endochronic description of plastic anisotropy in sheet metal

A. Tabiei and **Y. Jiang** 2757 Woven fabric composite material model with material nonlinearity for nonlinear finite element simulation

M. R. Begley, A. G. Evans and **J. W. Hutchinson** 2773 Spherical impression of thin elastic films on elastic–plastic substrates

2789 Keywords

NUMBER 19

J. B. Haddow and **L. Jiang** 2793 Finite amplitude spherically symmetric wave propagation in a prestressed hyperelastic shell

J. Zhou and **Z. Feng** 2807 Transient response analysis of one-dimensional distributed parameter systems

A. Zmitrowicz 2825 An equation of anisotropic friction with sliding path curvature effects

A. Zmitrowicz 2849 Illustrative examples of anisotropic friction with sliding path curvature effects

T. Y. Kam, F. M. Lai, and **T. M. Chao** 2865 Optimum design of laminated composite foam-filled sandwich plates subjected to strength constraint

M. Çelik and **A. Saygun** 2891 A method for the analysis of plates on a two-parameter foundation

M. S. Qatu 2917 Accurate equations for laminated composite deep thick shells

2943 Keywords

NUMBER 20

J. Gao 2947 An asymmetric theory of nonlocal elasticity—Part 1. Quasicontinuum theory

J. Gao 2959 An asymmetric theory of nonlocal elasticity—Part 2. Continuum field

J. Callahan and **H. Baruh** 2973 A closed-form solution procedure for circular cylindrical shell vibrations

T. O. Williams 3015 A generalized multilength scale nonlinear composite plate theory with delamination

K. Uetani and **Y. Araki** 3051 Steady-state limit analysis of elastoplastic trusses under cyclic loads

H. Xie and **J. Wang** 3073 Direct fractal measurement of fracture surfaces

G. Borino and **C. Polizzotto** 3085 Letter to the Editor

C. Nilsson 3093 Author's Closure

3101 Keywords

NUMBER 21

T. A. Khantuleva and **Yu. I. Mescheryakov**	3105	Nonlocal theory of the high-strain-rate processes in structured media
E. Adolfsson and **P. Gudmundson**	3131	Matrix crack initiation and progression in composite laminates subjected to bending and extension
J. S. Yang	3171	Equations for the extension and flexure of electroelastic plates under strong electric fields
O. van der Sluis, **P. H. J. Vosbeek**, **P. J. G. Schreurs** and **H. E. H. Meijer**	3193	Homogenization of heterogeneous polymers
W.-F. Pan, **W.-J. Chiang** and **C.-K. Wang**	3215	Endochronic analysis for rate-dependent elasto-plastic deformation
L.-J. Young and **Y.-P. Tsai**	3239	A boundary element application for mixed mode loading idealized sawtooth fracture surface
	3253	Keywords

NUMBER 22

G. Ma, **S. Iwasaki**, **Y. Miyamoto** and **H. Deto**	3257	Dynamic plastic behavior of circular plate using unified yield criterion
M. E. Heelis, **M. N. Pavlović** and **R. P. West**	3277	The stability of uniform-friction piles in homogeneous and non-homogeneous elastic foundations
Y. Lee and **V. Prakash**	3293	Dynamic brittle fracture of high strength structural steels under conditions of plane strain
W. H. Müller, **W. Littmann** and **H. Gao**	3339	Mixed mode fracture in epicycloid specimens III. Dislocations
C. K. Chao and **K. J. Chang**	3349	Interacting circular inclusions in antiplane piezoelectricity
J.-J. Han and **Y.-H. Chen**	3375	Multiple parallel cracks interaction problem in piezoelectric ceramics
A. N. Shupikov and **S. V. Ugrimov**	3391	Vibrations of multilayer plates under the effect of impulse loads. Three-dimensional theory
	3403	Keywords

NUMBER 23

K. S. Zhang, **J. B. Bai** and **D. François**	3407	Ductile fracture of materials with high void volume fraction
H. M. Jensen	3427	Analysis of compressive failure of layered materials by kink band broadening

Q. Wang and **X. Deng**	3443	Damage detection with spatial wavelets
M. D. Sharma	3469	Dispersion in oceanic crust during earthquake preparation
T. Y. Ng, K. Y. Lam and **J. N. Reddy**	3483	Dynamic stability of cylindrical panels with transverse shear effects
Z. L. Zhang, M. Hauge, J. Ødegård and **C. Thaulow**	3497	Determining material true stress–strain curve from tensile specimens with rectangular cross-section
S. F. Müller de Almeida and **J. S. Hansen**	3517	Natural frequencies of composite plates with tailored thermal residual-stresses
C.-C. Ma and **G.-S. Lee**	3541	Theoretical analysis, numerical calculation and experimental measurement of transient elastic waves in strips subjected to dynamic loadings
	3565	Keywords

NUMBER 24

V. J. Pauk and **Cz. Woźniak**	3569	Plane contact problem for a half-space with boundary imperfections
I. Elishakoff, J. Ari-Gur and **P. S. Das**	3581	Refined theories may be needed for vibration analysis of structures with overhang
A. Taliercio and **R. Coruzzi**	3591	Mechanical behaviour of brittle matrix composites: a homogenization approach
R. García, J. Flórez-López and **M. Cerrolaza**	3617	A boundary element formulation for a class of non-local damage models
H. G. Georgiadis, A. P. Rigatos and **L. M. Brock**	3639	Thermoelastodynamic disturbances in a half-space under the action of a buried thermal/mechanical line source
P. Redanz and **V. Tvergaard**	3661	Analysis of shear band instabilities in sintered metals
B. Budiansky	3677	On the minimum weights of compression structures
C. Barret and **S. Baste**	3709	Induced damage by ellipsoidal cracks in an anisotropic medium
	3731	Keywords

NUMBER 25

S. Zhan, T. Wang and **X. Han**	3735	Analysis of two-dimensional finite solids with micro-cracks
G.-D. Jung and **S.-K. Youn**	3755	A nonlinear viscoelastic constitutive model of solid propellant
X. Zhang and **N. Hasebe**	3779	Stress intensity factors of a crack in a composed circular cylinder

N. Jaunky and **N. F. Knight, Jr.** 3799 An assessment of shell theories for buckling of circular cylindrical laminated composite panels loaded in axial compression

R. Mao and **C.-H. Lu** 3821 Buckling analysis of a laminated cylindrical shell under torsion subjected to mixed boundary conditions

V. A. Buryachenko 3837 Triply periodical particulate matrix composites in varying external stress fields

V. A. Buryachenko 3861 Effective thermoelastic properties of graded doubly periodic particulate matrix composites in varying external stress fields

3887 Keywords

NUMBER 26

Z.-G. Zhou, J.-C. Han and **S.-Y. Du** 3891 Investigation of a Griffith crack subject to anti-plane shear by using the non-local theory

A. A. Elsharkawy 3903 Effect of friction on subsurface stresses in sliding line contact of multilayered elastic solids

G. J. Dvorak, P. Prochazka and **M. V. Srinivas** 3917 Design and fabrication of submerged cylindrical laminates—I

M. V. Srinivas, G. J. Dvorak and **P. Prochazka** 3945 Design and fabrication of submerged cylindrical laminates—II. Effect of fiber pre-stress

Z. Chen and **X. Xin** 3977 An analytical and numerical study of failure waves

Z. P. Bažant and **C. Huet** 3993 Thermodynamic functions for ageing viscoelasticity: integral form without internal variables

M. S. Gadala and **S. G. Tang** 4017 Complex variable BEM solution for half-plane problems with straight boundary clamped

C. A. Tan and **B. Kang** 4031 Free vibration of axially loaded, rotating Timoshenko shaft systems by the wave-train closure principle

4051 Keywords

NUMBER 27

S. H. Ju and **T. L. Horng** 4055 Behaviors of a single crack in multiple bolted joints

Z. Li, B. Mu, T. Y. P. Chang and **C.-T. Hsu** 4071 Prediction of overall tension behavior of short fiber-reinforced composites

E. Z. Wang and **N. G. Shrive** 4089 A 3-D ellipsoidal flaw model for brittle fracture in compression

L. Librescu and **W. Lin** 4111 Non-linear response of laminated plates and shells to thermomechanical loading: Implications of violation of interlaminar shear traction continuity requirement

M. Ciavarella 4149 Indentation by nominally flat or conical indenters with rounded corners

X. Han and **T. Wang** 4183 Interacting multiple cracks in piezoelectric materials

4203 Announcement

4205 Keywords

NUMBER 28

V. I. Ishakov 4209 Stability analysis of viscoelastic thin shallow hyperbolic paraboloid shells

Y.-M. Wang 4225 The stability analysis of a slider-crank mechanism due to the existence of two-component parametric resonance

S. Shen, Z.-B. Kuang and **S. Hu** 4251 On interface crack in laminated anisotropic medium

A. Thionnet and **J. Renard** 4269 Modelling unilateral damage effect in strongly anisotropic materials by the introduction of the loading mode in damage mechanics

N. Siredey, E. Patoor, M. Berveiller and **A. Eberhardt** 4289 Constitutive equations for polycrystalline thermoelastic shape memory alloys. Part I. Intragranular interactions and behavior of the grain

W.-Q. Chen 4317 Problems of radially polarized piezoelastic bodies

C. M. Landis and **R. M. McMeeking** 4333 Stress concentrations in composites with interface sliding, matrix stiffness and uneven fiber spacing using shear lag theory

4363 Keywords

NUMBER 29

S. D. Papka and **S. Kyriakides** 4367 Biaxial crushing of honeycombs—Part I: Experiments

S. D. Papka and **S. Kyriakides** 4397 In-plane biaxial crushing of honeycombs—Part II: Analysis

Y.-H. Liu, J.-Q. Xu and **H.-J. Ding** 4425 Order of singularity and singular stress field about an axisymmetric interface corner in three-dimensional isotropic elasticity

M. Enelund and **G. A. Lesieutre** 4447 Time domain modeling of damping using anelastic displacement fields and fractional calculus

K. T. Chau and **X. X. Wei** 4473 Spherically isotropic, elastic spheres subject to diametral point load strength test

X. K. Zhu and **Y. J. Chao** 4497 Characterization of constraint of fully plastic crack-tip fields in non-hardening materials by the three-term solution

4519 Keywords

NUMBER 30

Han Xueli and **Wang Tzuchiang**	4523	Elastic fields of interacting elliptic inhomogeneities
Y. Wang and **J. Pan**	4543	Development of a multiaxial fatigue theory by considering constraint effects on small mixed-mode cracks
Y.-S. Wang and **G.-L. Yu**	4563	Re-polarization of elastic waves at a frictional contact interface—II. Incidence of a P or SV wave
S. Turteltaub and **P. Washabaugh**	4587	Optimal distribution of material properties for an elastic continuum with structure-dependent body force
Y.-S. Ing and **C.-C. Ma**	4609	Transient analysis of a propagating crack with finite length subjected to a horizontally polarized shear wave
Ding Haojiang, Xu Rongqiao, Chi Yuwei and **Chen Weiqui**	4629	Free axisymmetric vibration of transversely isotropic piezoelectric circular plates
G. Y. Li, M. J. Tan and **K. M. Liew**	4653	Springback analysis for sheet forming processes by explicit finite element method in conjunction with the orthogonal regression analysis
E. I. Ryzhak	4669	A case of indispensable localized instability in elastic–plastic solids
	4693	Keywords

NUMBERS 31–32

GEOMECHANICS

	4697	Foreword
M. N. Guddati and **J. L. Tassoulas**	4699	Space-time finite elements for the analysis of transient wave propagation in unbounded layered media
E. Kausel	4725	Dynamic point sources in laminated media via the thin-layer method
R. Y. S. Pak and **B. B. Guzina**	4743	Seismic soil-structure interaction analysis by direct boundary element methods
P. L. A. Barros and **E. de Mesquita Neto**	4767	Elastodynamic Green's functions for orthotropic plane strain continua with inclined axes of symmetry
H. B. Coda and **W. S. Venturini**	4789	On the coupling of 3D BEM and FEM frame model applied to elastodynamic analysis
R. de Boer and **J. Bluhm**	4805	The influence of compressibility on the stresses of elastic porous solids—semimicroscopic investigations
S. Breuer and **S. Jägering**	4821	Numerical calculation of the elastic and plastic behavior of saturated porous media
Y. Zhou, R. K. N. D. Rajapakse and **J. Graham**	4841	Coupled fields in a deformable unsaturated medium

R. Carbonell, J. Desroches and **E. Detournay** 4869 A comparison between a semi-analytical and a numerical solution of a two-dimensional hydraulic fracture

C. Atkinson and **N. D. Aparicio** 4889 Fracture detection problems: applications and limitations of the energy momentum tensor and related invariants

B. Jeremić, K. Runesson and **S. Sture** 4901 A model for elastic-plastic pressure sensitive materials subjected to large deformations

A. P. S. Selvadurai and **K. Sepehr** 4919 Two-dimensional discrete element simulations of ice–structure interaction

G. W. Wathugala and **S. Pal** 4941 Comparison of different implementation algorithms for HiSS constitutive models in FEM

K. T. Chau 4963 Young's modulus interpreted from plane compressions of geomaterials between rough end blocks

NUMBER 33

Y. C. Das and **S. M. Sargand** 4975 Forced vibrations of laterally loaded piles

X. Wu and **N. Ohno** 4991 A homogenization theory for time-dependent nonlinear composites with periodic internal structures

T. Zhu and **W. Yang** 5013 Crack kinking in a piezoelectric solid

M. F. Horstemeyer and **A. M. Gokhale** 5029 A void–crack nucleation model for ductile metals

H.-C. Wu and **C. K. Nanakorn** 5057 A constitutive framework of plastically deformed damaged continuum and a formulation using the endochronic concept

R. Chambon and **D. Caillerie** 5089 Existence and uniqueness theorems for boundary value problems involving incrementally non linear models

F.-L. Liu and **K. M. Liew** 5101 Differential quadrature element method for static analysis of Reissner–Mindlin polar plates

Zeng-tao Chen and **B. L. Karihaloo** 5125 Dynamic response of a cracked piezoelectric ceramic under arbitrary electro-mechanical impact

5135 Announcement

5137 Keywords

NUMBER 34

R. Nzengwa and **B. H. Tagne Simo** 5141 A two-dimensional model for linear elastic thick shells

L. De Vivo and **F. Marotti de Sciarra** 5177 The B-bar method and the limitation principles

A. Benedetti and **L. Deseri** 5207 On a viscoplastic Shanley-like model under constant load

J. Przewłócki	5233	Reduction of dimensions in random, elastic soil medium
C. Hüttel and **A. Matzenmiller**	5255	Extension of generalized plasticity to finite deformations and non-linear hardening
T. Hong, J. G. Teng and **Y. F. Luo**	5277	Axisymmetric shells and plates on tensionless elastic foundations
T. M. Teo and **K. M. Liew**	5301	Three-dimensional elasticity solutions to some orthotropic plate problems
	5327	Erratum
	5329	Announcement

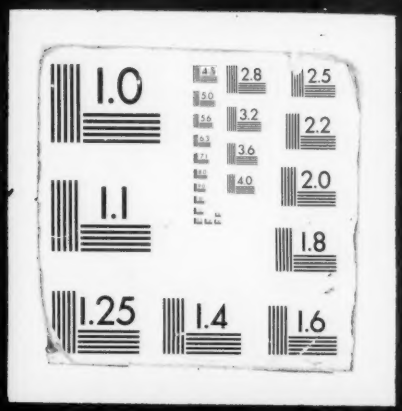
NUMBER 35

A. M. Maniatty, J.-S. Yu and **T. Keane**	5331	Anisotropic yield criterion for polycrystalline metals using texture and crystal symmetries
D. S. Sophianopoulos	5357	Point attractors and dynamic buckling of autonomous systems under step loading
L. C. Martins and **R. F. Oliveira**	5387	The center of a system of non-parallel forces
B. Schieck, W. M. Smoleński and **H. Stumpf**	5399	A shell finite element for large strain elastoplasticity with anisotropies—Part I: Shell theory and variational principle
B. Schieck, W. M. Smoleński and **H. Stumpf**	5425	A shell finite element for large strain elastoplasticity with anisotropies—Part II: Constitutive equations and numerical applications
V. Tvergaard	5453	Effect of large elastic strains on cavitation instability predictions for elastic–plastic solids
H. Sosa and **N. Khutoryansky**	5467	Transient dynamic response of piezoelectric bodies subjected to internal electric impulses
A. K. Soh and **Z. F. Long**	5485	A high precision element with a central circular hole
	5499	Corrigendum
	5501	Announcement
	5503	Keywords

NUMBER 36

R. D. Kangwai and **S. D. Guest**	5507	Detection of finite mechanisms in symmetric structures
Chingshen Li and **F. Ellyin**	5529	A mesomechanical approach to inhomogeneous particulate composites undergoing localized damage: part I—a mesodomain simulation
Y. C. Gao and **Tianjie Gao**	5545	Mechanical behavior of two kinds of rubber materials

Y. C. Gao and **Tianjie Gao**	5559	Analytical solution to a notch tip field in rubber-like materials under tension
R. Kolhe, S. Tang, C.-Y. Hui and **A. T. Zehnder**	5573	Cohesive properties of nickel-alumina interfaces determined via simulation of ductile bridging experiments
Zhen-Gong Zhou, Ya-Ying Bai and **Xian-Wen Zhang**	5597	Two collinear Griffith cracks subjected to uniform tension in infinitely long strip
Ding Haojiang and **Peng Nanling**	5611	The analysis of thermal residual stresses near the apex in bonded dissimilar materials
N. P. O'Dowd, O. Kolednik and **V. P. Naumenko**	5639	Elastic-plastic analysis of biaxially loaded center-cracked plates
	5663	Letter to the Editor
	5665	Authors' Closure
	iii	Volume Contents
	xxi	Author Index


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
6.3
7.1
8.0
9.0